

LISTING OF CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

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Claims 1-2 (Canceled)

3. (Currently Amended): A monitor apparatus for a sequential-function-chart-type programmable controller according to ~~Claim 2~~, further comprising:

a reference-active-time memory unit for storing a standard value of an active time of an arbitrary step in a sequential-function-chart program;
a timer for measuring the active time of the arbitrary step;
an anomalous-state monitoring unit which detects an anomalous state of the arbitrary step through comparison between the active time measured by the timer and the standard value stored in the reference-active-time memory unit;

a display unit for displaying the program in such a manner that a step which has been detected by the anomalous-state monitoring unit to be in an anomalous state is distinguished from other steps; and

an execution monitor unit for storing data indicating whether each step in the sequential-function-chart program has been executed, wherein the display unit displays the program in such a manner that a step or steps which have been executed are distinguished from a step or steps which have not yet been executed, on the basis of the data stored in the execution monitor unit so as to indicate a history or path up to the step detected to be in an anomalous state, wherein the history or path up to the step detected to be in an anomalous state is reset only during an initial step of the sequential-function-chart program.

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Claim 4 (Original): A monitor apparatus for a sequential-function-chart-type programmable controller according to Claim 3, wherein when conditions for transition from a certain step to the next step are satisfied, the execution monitor unit brings a corresponding execution-completion flag into a predetermined state to thereby memorize whether the step has been executed.

Claims 5-6 (Canceled).

Claim 7 (Currently Amended): A monitor apparatus for a sequential-function-chart-type programmable controller, comprising:

a reference-active-time memory unit for storing a standard value of an active time of an arbitrary step in a sequential-function-chart program;

a timer for measuring the active time of the arbitrary step;

an anomalous-state monitoring unit which detects an anomalous state of the arbitrary step through comparison between the active time measured by the timer and the reference standard value stored in the reference-active-time memory unit;

an execution monitor unit for storing data indicating whether each step in the sequential-function-chart program has been executed; and

a display unit for displaying the program in such a manner that a step detected by the anomalous-state monitoring unit to be in an anomalous state, a step or steps which have been executed, and a step or steps which have not yet been executed are distinguished from one another so as to indicate a history or path up to the step detected to be in an anomalous state, wherein the history or path up to the step detected to be in an anomalous state is only reset during an initial step of the sequential-function-chart program.

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Claim 8 (Original): A monitor apparatus for a sequential-function-chart-type programmable controller according to Claim 7, wherein when conditions for transition from a certain step to the next step are satisfied, the execution monitor unit brings a corresponding execution-completion flag into a predetermined state to thereby memorize whether the step has been executed.
